

REMARKS

Applicant notes that the Information Disclosure Statement mailed December 13, 2000, with form PTO-A820 disclosing three United States patents, was not enclosed with the Examiner's initials in the Office Action of November 14, 2000. Applicant requests that the items disclosed in such Information Disclosure Statement be made of record and considered in the examination of the present patent application.

Some typographic corrections have been introduced as amendments. Some of the rejected claims have been amended. No new matter has been added.

Applicant submits this Amendment "B" and Response for the Examiner's consideration. Reexamination and reconsideration of the application, as amended, in view of the following remarks are respectfully requested.

1. STATUS OF THE CLAIMS

Claims 1-61 were presented for examination; claims 1-61 stand rejected and pending in the application. Claims 1-9, 17-24, 29-30, 33-35, 37, 40-42, 44-45, 47, 49-50, 52, 54-55, 57, and 59-60 stand rejected under 35 U.S.C. § 102(b). Claims 10-16, 25, 26-28, 31-32, 36, 38-39, 43, 46, 48, 51, 53, 56, 58, and 61 stand rejected under 35 U.S.C. § 103(a). Some claims are amended.

2. RESPONSE TO REJECTIONS

2.1. Claim Rejections Under 35 U.S.C. § 102(b)

The following claims:

Independent claim 1, and dependent claims 2-8;

Independent claim 9, and dependent claims 17 and 18;

Independent claim 19, and dependent claims 20-24, 29-30, and 33-34; Independent claim 35, and dependent claims 37 and 40-41; Independent claim 42, and dependent claims 44-45; Independent claim 47, and dependent claims 49-50; Independent claim 52, and dependent claims 54-55; and Independent claim 57, and dependent claims 59-60; stand rejected under 35 U.S.C. § 102(b) as being anticipated by Lim *et al.*, (U.S. Patent No. 5,530,376) (hereinafter “Lim ”).

Lim discloses a reusable carrier for burn-in/testing of non-packaged die. The carrier disclosed by Lim has a well that is configured for receiving and holding therein a die for burn-in/testing. The carrier disclosed by Lim is not configured for receiving thereon, namely on its outermost surface, a die. *See, e.g.*, Lim, Figs. 1, 1B, 2, 4, 5A, 6A, 7C, 8D, 9, 10-13, 13A, 14-16; col. 2, *ll.* 54-56, 62-66; col. 4, *ll.* 6-8, 13-15; col. 5, *ll.* 22-25, 50-51, 55, 65-66; col. 6, *ll.* 13-15, 29-30, 39-43, 56; col. 7, *l.* 66; col. 8, *ll.* 1, 21, 58-59; col. 9, *ll.* 5-6.

In contrast, independent claims 1, 9, 19, 35, 42, 47, 52, and 57 recite a substrate (claims 1, 9 and 19) or sheet (claims 35, 42, 47, 52, and 57) “being configured for receiving thereon a semiconductive device” and “such that said semiconductive device lies at least in part on” the outermost surface of the substrate (claims 1, 9 and 19) or the sheet (claims 35, 42, 47, 52, and 57). This recitation is also incorporated in relevant part into dependent claims 2-8, 17-18, 20-24, 29-30, 33-34, 37, 40-41, 44-45, 49-50, 54-55, and 59-60 because these claims depend directly or through intervening claims from claims 1, 9, 19, 35, 42, 47, 52, and 57. Lim does not teach or disclose a carrier configured for receiving a die on its outermost surface, but, as indicated hereinabove, Lim discloses a carrier that has a well for receiving and holding therein a die for burn-in/testing. The die

as disclosed in Lim is located on an inner surface at the bottom of a well carved through the outermost surface of the carrier.

In addition to the differences between Lim and the presently claimed invention in claims 1-9, 17-24, 29-30, 33-35, 37, 40-42, 44-45, 47, 49-50, 52, 54-55, 57 and 59-60, as set forth above, Applicant incorporates herein by reference the arguments made in Amendment "A" and Response with respect to the rejections under 35 U.S.C. § 102(b) in view of Lim.

In making the anticipation rejection the Office Action overlooks some of the limitations of the claimed invention. *See* Office Action, p. 2, item 2. Applicant respectfully submits that the rejection fails to give proper weight to these limitations, especially since these limitations are missing from the prior art of record. Due to such absence of support in Lim, Applicant respectfully submits that the anticipation rejection is to be withdrawn as to claims with these limitations.

Because of at least the foregoing recited features in claims 1-9, 17-24, 29-30, 33-35, 37, 40-42, 44-45, 47, 49-50, 52, 54-55, 57 and 59-60, Lim does not teach or disclose each and every feature of the invention recited in these claims. As stated by the Federal Circuit,

Anticipation requires the presence in a single prior art reference disclosure of each and every element of the claimed invention, arranged as in the claim.

Lindermann Maschinenfabrik GmbH v. American Hoist & Derrick Co., 730 F.2d 1452, 1458, 221 U.S.P.Q. 481, 485 (Fed. Cir. 1984). *See also* M.P.E.P. § 2131, pp. 2100-54, 55 (Rev. 1, Feb. 2000) (quoting, in addition, *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 U.S.P.Q.2d 1051, 1053 (Fed. Cir. 1987), and *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 U.S.P.Q.2d 1913, 1920 (Fed. Cir. 1989)). Consequently, Lim does not anticipate the invention claimed in these claims. Applicant respectfully submits that claims 1-9, 17-24, 29-30, 33-35, 37, 40-42, 44-45, 47, 49-50, 52, 54-55, 57, and 59-60, patentably distinguish over Lim, and

reconsideration and withdrawal of this rejection is respectfully requested. Allowance of these claims at an early date is solicited.

2.2. First Set of Claim Rejections Under 35 U.S.C. § 103(a)

The following claims:

Dependent claims 10-16, 25, 28, 31-32, 36, 38-39, 43, 46, 48, 51, 53, 56, 58, and 61; stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Lim.

For reasons such as those set forth hereinbelow, Lim does not provide the teachings which would render the claimed invention obvious.

The carrier disclosed by Lim is configured for receiving a die within the interior of a well that is carved through the outermost surface of the carrier. In contrast, dependent claims 10-16, 25, 28, 31-32, 36, 38-39, 43, 46, 48, 51, 53, 56, 58, and 61 recite, by incorporation from the corresponding independent claims, a substrate (independent claims 1, 9 and 19) or sheet (independent claims 35, 42, 47, 52, and 57) “being configured for receiving thereon a semiconductive device” and “such that said semiconductive device lies at least in part on” the outermost surface of the substrate (independent claims 1, 9 and 19) or the sheet (independent claims 35, 42, 47, 52, and 57). This structural feature is not taught or suggested by Lim. Furthermore, Lim does not teach or suggest how to solve problems associated with, for example, heat dissipation and assembly in light of such structural differences. For example, Lim relies on a plurality of holding elements and interlocking features for holding the die inside the well. In contrast, the claimed invention maintains a semiconductive device in contact with an interposer in an entirely different way. Furthermore, heat dissipation from a body confined inside a well as in Lim is different from heat dissipation as achieved by embodiments of the claimed invention. Lim does not provide any teaching or suggestion that would lead from the embodiments disclosed in Lim to the claimed invention.

Considering the working conditions, and in particular the heat generation, of the claimed system, Lim fails to teach or suggest how one could use a device that receives a die within a well and contains it therein with a heat sink and other cooperative elements to devise a system having an interposer with the features as recited in the rejected claims. This limitation in the disclosure by Lim is particularly important in light of the volume-sensitivity exhibited by problems related with heat generation and heat dissipation. The configuration of the semiconductive device with respect to the interposer as recited in the rejected claims is completely different from the configuration of the die with respect to the carrier as disclosed by Lim. This reference does not teach or even suggest how the claimed invention could have been carried out or its design would have had a reasonable likelihood of success in light of the disclosure provided by Lim. Furthermore, the configuration disclosed by Lim and the required use of the holding elements disclosed therein would have discouraged one of ordinary skill in the art from following the path set out in Lim.

Because of differences and limitations such as those described hereinabove, Lim has not suggested the claimed invention, and it may not be asserted that the teachings in Lim are sufficient for one of ordinary skill in the art to make the substitutions, combinations or other modifications that are necessary to arrive to the invention claimed in claims 10-16, 25, 28, 31-32, 36, 38-39, 43, 46, 48, 51, 53, 56, 58, and 61. Limitations and differences such as those set forth hereinabove also demonstrate that Lim does not teach or suggest all the claim limitations in claims 10-16, 25, 28, 31-32, 36, 38-39, 43, 46, 48, 51, 53, 56, 58, and 61. However, this teaching is required for establishing a *prima facie* case of obviousness. *See M.P.E.P. § 2142, p. 2100-97 (Rev. 1, Feb. 2000)* (citing *In re Vacck*, 947 F.2d 488, 20 U.S.P.Q.2d 1438 (Fed. Cir. 1991), providing three requirements for establishing a *prima facie* case of obviousness including the requirement that "the prior art reference ... must teach or suggest all the claim limitations").

To this respect, the Federal Circuit has explained that “[t]he consistent criterion for determination of obviousness is whether the prior art would have suggested to one of ordinary skill in the art that this ... [invention] should be carried out and would have a reasonable likelihood of success.” (Citations omitted). *Rockwell Int'l Corp. v. United States*, 147 F.3d 1358, 47 U.S.P.Q.2d 1027, 1033 (Fed. Cir. 1998).

Furthermore, in light of these differences and limitations in Lim, “a person of ordinary skill, upon reading the reference, would be discouraged from following the path set out in the reference, or would be led in a direction divergent from the path that was taken by the applicant.” *United States v. Adams*, 383 U.S. 39, 52 (1966). *See also W.L. Gore & Assocs. v. Garlock, Inc.*, 721 F.2d 1540, 1550-51 (Fed. Cir. 1983), *cert. denied*, 469 U.S. 851 (1984). In addition, “[b]oth the suggestion and the expectation of success must be founded in the prior art, not in applicant's disclosure.” *In re Dow Chemical Co.*, 837 F.2d 469, 473 (Fed. Cir. 1988). *See also* M.P.E.P. §§ 2142-43, p. 2100-97 (Rev. 1, Feb. 2000) (providing the basic requirements of a *prima facie* case of obviousness).

Consequently, Applicant respectfully submits that Lim does not support a *prima facie* case of obviousness regarding claims 10-16, 25, 28, 31-32, 36, 38-39, 43, 46, 48, 51, 53, 56, 58, and 61. Applicant respectfully requests the reconsideration and withdrawal of this rejection.

2.3. Second Set of Claim Rejections Under 35 U.S.C. § 103(a)

Dependent claims 26 and 27 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Lim in view of Wood. *et al.*, U.S. Pat. No. 5,578,934 (hereinafter “Wood”).

Wood is cited by referring to elements 74 and 28C therein. To this respect, Wood discloses microbump contact members that comprise an interconnect 12C and a nonconductive and electrically insulating film 74 attached to interconnect 12C using adhesive 76. Insulating film 74 has a metallic foil attached thereto that is patterned and etched to form conductive traces 28C. *See* Wood, Fig. 7,

col. 6, *ll. 57-63*. Based on this disclosure, it has not been established that Wood provides any teaching that would overcome the limitations and differences established hereinabove with respect to the disclosure in Lim. Furthermore, even if Wood were combined with Lim, the combination would not teach or suggest to the invention recited in claims 26-27; therefore, neither Lim nor Wood combined with Lim may render the invention recited in such claims obvious.

Applicant incorporates herein the reasoning, cites and quotes set forth in the foregoing subsection concerning the first set of claim rejections under 35 U.S.C. § 103(a).

Finally, it has not been shown that there is a motivation to combine the teachings in Wood with those in Lim and that such combination teaches or suggests the invention recited in any of the claims 26-27 with all its features and limitations.

Consequently, Applicant respectfully submits that neither Lim nor Wood combined with Lim supports a *prima facie* case of obviousness regarding claims 26-27. Applicant respectfully requests the reconsideration and withdrawal of this rejection.

3. **CONCLUSIONS**

In view of the above, Applicant respectfully maintains that the present application is in condition for allowance. Reconsideration of the rejections is requested. Allowance of claims 1-61 at an early date is solicited.

In the event that the Examiner finds any remaining impediment to a prompt allowance of this application which could be clarified by a telephonic interview, or which is susceptible to being overcome by means of an Examiner's Amendment, the Examiner is respectfully requested to initiate the same with the undersigned attorney.

Dated this 2 day of February 2001.

Respectfully submitted,

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